Claims, Assertions, Attestations & Certificates (Oh my?)

draft-wiethuechter-drip-identity-claims-03

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DRIP WG – IETF 109; 18 NOV 2020

A recap

- Draft had a major rewrite to convert to MD
  - Starting to refer to this document as DRIP Proofs
- Discussion on list for what terms to use
  - Started by Stu C. with responses from Carsten B., Michael R., Henk B., Bob M., Michael P.
  - Was clear that we need to put a stake in the ground of what we mean and how it fits in DRIP
- This is my take on what was discussed and how we could proceed and be on the same page
  - Important for Claims, Auth Format, Registry and UAS RID drafts to various degrees

Claim / Assertion

- Claim
  - A predicate consisting of two elements
    - **X owns Y**
      - UA owns HHIT and its derivate keypair
    - X is Y
      - UA is known by the name "Bob" or something
    - *X belongs to Y*
      - UA belongs to RAA/HDA pairing
- Assertion
  - A grouping of one or more claims by an entity

Example Claims / Assertions

- Hierarchical Host Identity Tag (HHIT)
  - HHITs are an **Assertion**
    - Claim 1: Entity owns unique ID (hash) and the keypair
    - Claim 2: Entity is participant of a registry (consists of a RAA and HDA pairing) using hash as unique ID

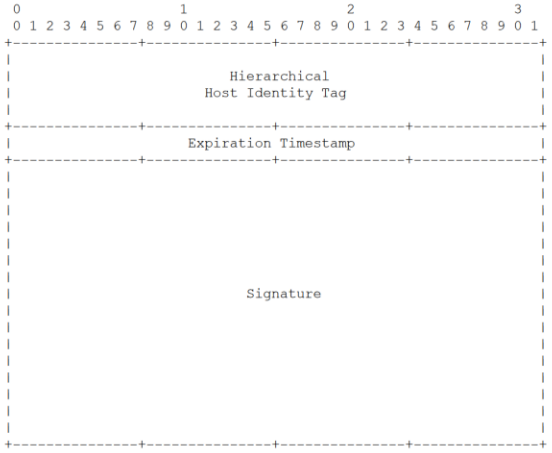
- 2001:000D:EADB:EEFA:0011:2233:4455:6677
  - 0011:2233:4455:6677 -- Claim 1
  - D:EADB:EEF -- Claim 2
  - Possible to take prefix (2001:000) and the OGA ID (A) and make them claims

Attestation / Certificate

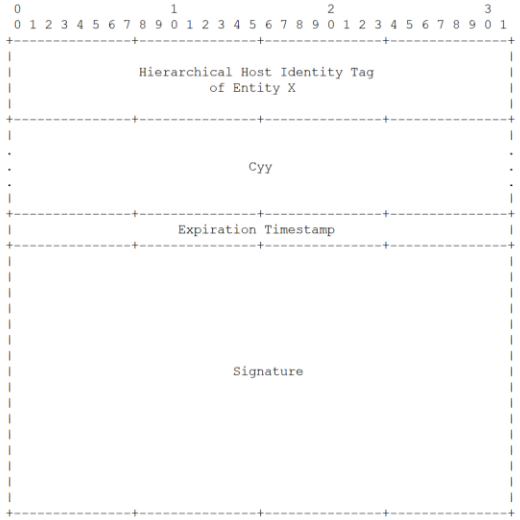
- Attestation
  - A signed assertion
  - Entity uses a keypair associated with a HHIT to create the structures being defined in draft (in DRIP)
    - Minimum is HHIT/HI pairing
    - Binding relationship between parties (Registry and Operator, Operator and Aircraft, etc.)
- Certificate
  - Identities/Attestations being signed by a *third party*
  - Do we want this to narrow further by being a "trusted third party" (aka a Registry)?

Example Attestations / Certificates

Attestations



Certificates

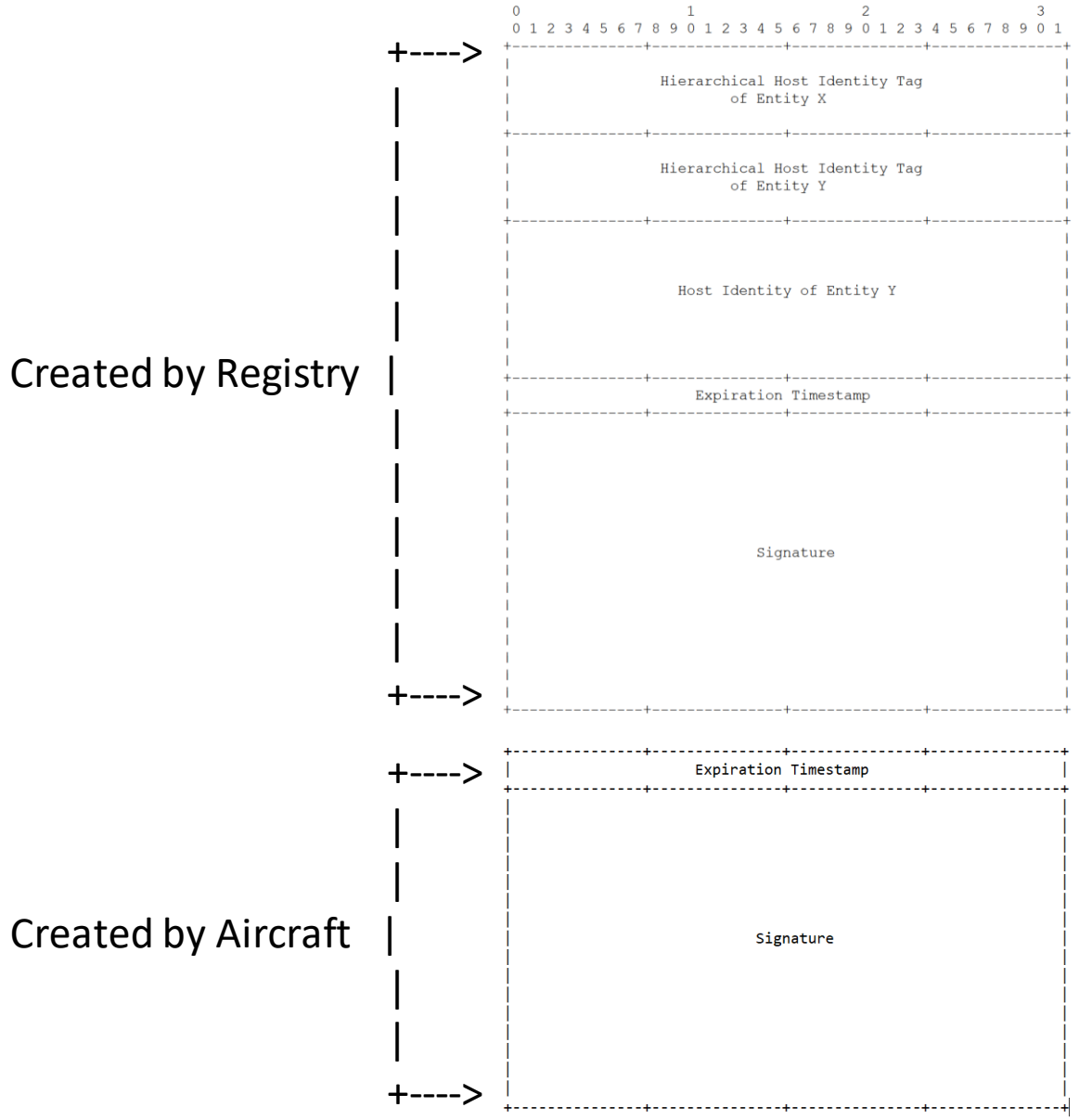


The proposed flow with terms

- Registry, Aircraft and Operator creates Attestations on themselves (Arr, Aaa, Aoo)
- Operator creates a Certificate for the relationship between itself and Aircraft (Coa)
- Registry uses Aoo to create a Certificate between itself and Operator (Cro)
- Registry uses at least Coa from Operator to create
  - Certificate between itself, Operator and Aircraft (Croa)
  - Certificate/Attestation of Aircraft being a member of Registry (Cra/Ara)
    - This is used later to create the Offline Attestation/Certificate onboard the Aircraft "live" during flight

Offline Attestation / Certificate

- A two-part item
  - Upper portion is generated by Registry using Coa and returned during Aircraft provisioning
    - Will be defined in identity-claims draft?
    - Signature generated using Entity X keypair
  - Lower portion signs upper portion during flight by Aircraft using onboard keypair
    - Will be defined in Auth Formats draft
- Is this a Certificate or Attestation?
  - The Registry portion is very much an Attestation (signed claims/assertions/relationship)
  - The whole object however??
    - Bob M. is saying Attestation, lines up with definitions defined



What needs to change in document…

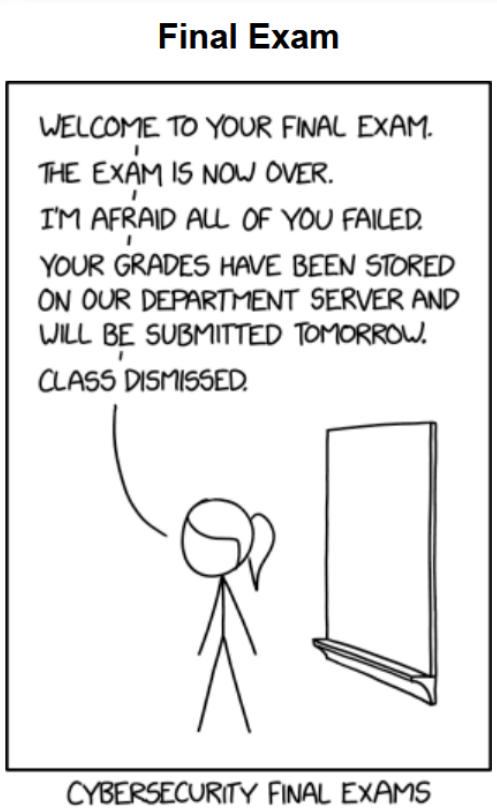
- Section 1.1 needs to be checked to match what is agreed on
- *Certificate: X on X* needs to be renamed to *Attestation: X on X*
  - Make short name be "Self-Attestation"
  - Change "Concise Self-Attestation"
- *Attestation: X on Y* needs to be renamed to *Certificate: X on Y*
  - Also make changes to the concise forms (aka short forms)
- *Attestation: X on Y (Offline Form)* might need a new name or left the same
  - Just give the short name "Offline Attestation" to match Bob M. in UAS RID
- Fix the provision section to realign with above

Other TODOs

- Align the Authentication Formats draft with changes
  - Just minor text changes to properly point to identity-claims draft and include the new structures
  - Add text for the signing over the Offline Attestation structure
- Start helping work on a Registry draft
- Continue AX implemention switch from old style auth to new style auth
  - Halted due to the numerous demos freezing code base

Discussion

Questions, Comments, Concerns?



Title text: For those of you also taking Game Theory, your grade in that class will be based on how close your grade on this exam is to 80% of the average.

https://xkcd.com/1269/